a discharge cover having a built-in volume so as to cover the front end surface of the cylinder;

a piston within said cylinder, said piston being capable of a reciprocating movement between a first position and a second position;

a hemispherically shaped discharge valve disposed so as to be in contact with the front end surface of the cylinder when said piston is in said first position and separated from said front end surface of said cylinder when said piston is in said second position; and

a valve spring having both ends respectively engaged with a rear surface of the discharge valve and with an inner surface of the discharge cover, said inner surface of said discharge cover facing the rear surface of the discharge valve, said valve spring elastically supporting the rear surface of the discharge valve,

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wherein the valve spring is formed with a conical shape in which a rotation radius is gradually tapered so as to prevent adjacent portions of said valve spring from impacting with each other when said valve spring is in a compressed state.

2. (Amended) The apparatus according to claim 1, wherein the valve spring is wound more than twice.

3. (Amended) The apparatus according to claim 1, further comprising at least one stepped surface being formed inside the discharge cover, and wherein

a front end of the valve spring is prevented from contacting an inner wall of the discharge cover.

4. (Amended) The apparatus according to claim 3, further comprising a second stepped surface in which an end of the valve spring is inserted, said second stepped surface being formed adjacent to the at least one stepped surface and preventing said front end of the valve spring from engaging said inner wall.

5. (Amended) The apparatus according to claim 1, said valve spring including a plurality of coils, wherein a gap is formed between said coils of the valve spring.

6. (Amended) The apparatus according to claim 1, wherein a center of the valve spring and a center of the discharge valve are on a common axial line.

7. (Amended) The apparatus according to claim 1, wherein a gap between an outer diameter of the discharge valve and an inner diameter of the discharge cover is more than 1mm.

8. (Amended) The apparatus according to claim 1, wherein the discharge valve comprises:

a plane pressure face engaging the front end surface of the cylinder; and

a pressure rear face extending from a side facing the plane pressure face, wherein a diameter of said pressure rear face gradually reduces in a direction from an edge toward a center of said pressure rear face.

9. (Amended) The apparatus according to claim 8, further comprising a parting line being formed on a position where the plane pressure face meets the pressure rear face.

10. (Amended) The apparatus according to claim 8, wherein the discharge valve further comprises an undercutting surface being formed in a position opposite to at least one of the pressure face and the pressure rear face.

11. (Amended) The apparatus according to claim 8, wherein the pressure rear face further comprises a spring insert capable of being inserted into the valve spring.

12. (Amended) The apparatus according to claim 11, wherein the spring insert includes a vertical portion and a horizontal portion.

13. (Amended) A method of making the apparatus of claim 1, said method comprising:

injection molding the discharge valve with a first metal mold and a second metal mold, wherein said first metal mold includes a contour for forming the plane pressure face and the second metal mold includes a contour for forming the pressure rear face and the undercutting surface on the discharge valve; and

forming a gate on said first metal mold on which the plane pressure face unit is molded when the discharge valve is injection molded.

B1 14. (Amended) The method according to claim 13, wherein a plurality of eject pins are formed on the second metal mold on which the pressure rear face is formed when the discharge valve is injection molded.

Please add the following additional claims:

--15. A discharge valve assembly for a reciprocating compressor comprising:

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a discharge cover having an interior space, an inner surface and an opened end;

B2 a hemispherically shaped discharge valve disposed so as to be in a position adjacent to said opened end of said discharge cover, said discharge valve including a rear surface and a front surface; and

a conically-shaped valve spring having a pair of ends respectively engaged with the rear surface of the discharge valve and with the inner surface of the discharge cover, said inner surface of said discharge cover facing the rear

surface of the discharge valve and said valve spring elastically supporting the rear surface of the discharge valve, wherein the valve spring includes a rotation radius tapered so as to prevent adjacent portions of said valve spring from impacting with each other when said valve spring is in a compressed state.

16. The discharge valve assembly according to claim 15, wherein the discharge valve comprises:

a plane pressure face; and

a pressure rear face extending from a side facing said valve spring, wherein a diameter of said pressure rear face gradually reduces in a direction from an edge of said pressure rear face toward a center of said pressure rear face.

17. The discharge valve assembly according to claim 16, wherein the discharge valve further comprises an undercutting surface being formed in a position opposite to at least one of the pressure face and the pressure rear face.

18. The discharge valve assembly according to claim 17, wherein the pressure rear face further comprises a spring insert capable of being inserted into the valve spring.

19. The apparatus according to claim 1, wherein the valve spring is wound 2.3 times.

20. The method according to claim 13, further comprising forming a parting a line between the plane pressure face and pressure rear face of the discharge valve.--